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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,700

09/28/2006

Chojiro Kuriyama

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EXAMINER

THOMAS, ERIC W

ART UNIT

PAPER NUMBER

2831

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,700	Applicant(s) KURIYAMA, CHOJIRO	
	Examiner Eric Thomas	Art Unit 2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 15-25 is/are rejected.
- 7) ☒ Claim(s) 7-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/06</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION***Specification***

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

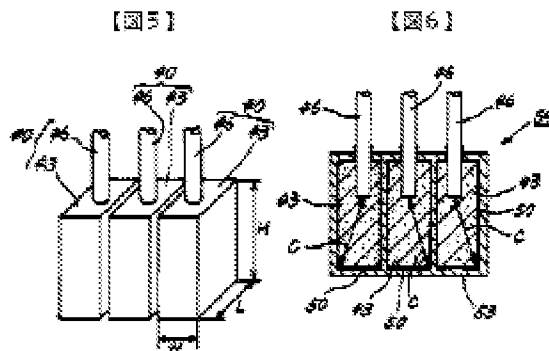
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section

3. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Takastu et al. (JP 2001-57319).



Takastu et al. disclose in fig. 5-7, a solid electrolytic capacitor comprising:
a first porous sintered body (43) made of a valve metal; and a second porous

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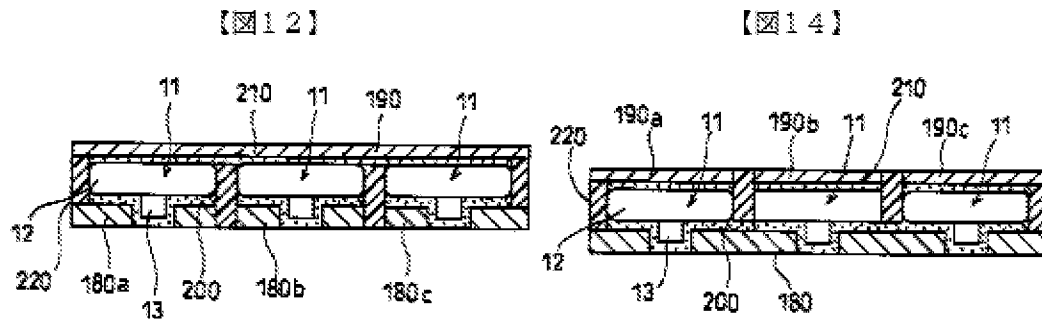
sintered body made of a valve metal (43); wherein each of the sintered bodies is flat and includes two principal surfaces; and wherein the first sintered body and the second sintered body are spaced from each other in a predetermined direction perpendicular to a direction in which the two principal surfaces are spaced from each other.

Regarding claim 2, Takastu et al. disclose a package that collectively seal the first and the second sintered bodies (see also fig. 4).

Regarding claim 3, Takastu et al. disclose an internal anode terminal electrically connected to one of the first and the second sintered bodies (46); and an external anode terminal (fig. 4) electrically connected to the internal anode terminal and exposed from the package.

Regarding claim 4, Takastu et al. disclose a dielectric layer and a solid electrolytic layer formed on one of the first and the second sintered bodies; an internal cathode terminal electrically connected to the solid electrolytic layer; and an external cathode terminal electrically connected to the internal cathode terminal and exposed from the package.

4. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kanetake (JP 2003142347).



Kanetake discloses in fig. 12, 14, a solid electrolytic capacitor comprising: a first porous sintered body (11) made of a valve metal; and a second porous sintered body made of a valve metal (11); wherein each of the sintered bodies is flat and includes two principal surfaces; and wherein the first sintered body and the second sintered body are spaced from each other in a predetermined direction perpendicular to a direction in which the two principal surfaces are spaced from each other.

Regarding claim 2, Kanetake discloses a package that collectively seal the first and the second sintered bodies (see also fig. 8, 9).

Regarding claim 3, Kanetake discloses an internal anode terminal electrically connected to one of the first and the second sintered bodies (13); and an external anode terminal electrically connected to the internal anode terminal and exposed from the package.

Regarding claim 4, Kanetake discloses a dielectric layer and a solid electrolytic layer formed on one of the first and the second sintered bodies; an internal cathode terminal electrically connected to the solid electrolytic layer; and

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an external cathode terminal electrically connected to the internal cathode terminal and exposed from the package.

5. Claims 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Love et al. (US 4,599,788).

Love et al. disclose a method of manufacturing a solid electrolytic capacitor, the method comprising the steps of: compacting valve metal powder to form a porous compact; positioning the porous compact on a metal plate with a bonding material containing valve metal powder; and fixing the porous compact to the metal plate by sintering (see col. 2 lines 15-56).

Regarding claim 16, Love et al. disclose the method further comprising the step of preliminarily sintering the porous compact before positioning the porous compact on the metal plate (see col. 2 lines 35-39).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takatsu et al. (JP 2001-57319).

Takastu et al. (in the embodiment of figs 5-7) disclose the claimed invention except that the internal anode terminal includes a first anode rod and a second anode rod projecting in an opposite direction from said one of the sintered bodies, and wherein a projecting direction of the first anode rod intersects with the predetermined direction in which the first sintered body and the second sintered body are spaced.

Takastu et al. disclose an embodiment wherein the internal anode terminal includes a first anode rod and a second anode rod projecting in an opposite direction from said one of the sintered bodies, and a projecting direction of the first anode rod intersects with the predetermined direction in which the first sintered body and the second sintered body are spaced.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the capacitor of embodiment of figs. 5-7 by forming a second anode rod projecting in an opposite direction from said one of the sintered bodies, and wherein a projection direction of the first anode rod intersects with the predetermined direction in which the first and second sintered body are spaced, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 3 USPQ 8.

Regarding claim 6, Takastu et al. disclose a conductor that electrically connects the first anode rod and the second anode rod to each other.

8. Claims 17, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Love et al. (US 4,599,788) in view of Yoshida (US 2003/0218859).

Love et al. disclose a solid electrolytic capacitor comprising: a porous sintered body (12) formed by sintering a compact made of valve metal powder (Ta); a metal plate (10) supporting the porous sintered body; and a bonding material (11) provided between the porous sintered body and the metal plate for fixing the porous sintered body to the metal plate.

Love et al. disclose the claimed invention except that the bonding material is obtained by heating a paste containing valve metal powder having a particle diameter smaller than that of the powder used for forming the compact.

Yoshida discloses a solid electrolytic capacitor comprising a sintered valve metal bonded to a thin plate valve metal, wherein the bonding material comprises a paste containing valve metal powder having a particle diameter smaller than that of the powder used for forming the compact.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the bonding layer of Love et al. using a valve metal powder having a particle diameter smaller than that of the powder used in forming the compact, since such a modification would improve the bond between the plate and sintered compact body.

Regarding claim 18, Love et al. disclose the claimed invention except that the density of the compact ranges from 5.5 to 8.0 g/cm³.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the compact having a density ranging from 5.5 to 8.0 g/cm³, since it has been held that where the general conditions of a

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claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 19, Love et al. disclose the claimed invention except that the density of the compact ranges from 6.0 to 7.0 g/cm³.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the compact having a density ranging from 6.0 to 7.0 g/cm³, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 22, Love et al. disclose the compact is made of tantalum powder, the metal plate being made of metal tantalum, the powder contained in the paste being tantalum powder

9. Claims 20-21, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Love et al. (US 4,559,788) and Yoshida (US 2003/0218859) as applied to claim 17 above, and further in view of Yoshida (US 6,351,371).

Love et al. disclose the compact has a density ranging from 2.3 to 4.5 g/cm³. Love et al. disclose the claimed invention except that the compact is formed from niobium powder, niobium (II) oxide powder, and niobium nitride powder.

Yoshida teaches that niobium powder is a known material used in the formation of solid electrolytic capacitor anodes.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the sintered compact of Love et al. using a

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niobium material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 21, Love et al. disclose the claimed invention except that the density of the compact ranges from 2.5 to 3.5 g/cm³. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the compact so as to have a density from 2.5 to 3.5 g/cm³, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 23, Love et al. disclose the claimed invention except that the compact is made of niobium powder, the metal plate being made of niobium, and the powder contained in the paste being niobium powder.

Yoshida et al. disclose a solid electrolytic capacitor comprising a niobium powder compact.

Yoshida discloses a niobium metal plate, and a niobium powder adhesive paste.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the capacitor of Love et al. with a niobium powder compact, niobium metal plate and a niobium powder adhesive plate as taught by Yoshida and Yoshida et al, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its

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suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

10. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Love et al. (US 4,599,788) and Yoshida (US 2003/0218859) as applied to claim 17 above, and further in view of Reichert et al. (US 2004/0028922).

Love et al. disclose the claimed invention except that the compact is made of niobium (II) oxide powder, the metal plate being made of niobium, the powder contained in the paste being one of niobium powder, niobium (II) oxide powder and niobium nitride powder.

Yoshida discloses a solid electrolytic capacitor comprising a niobium metal plate.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the metal plate of Love et al. using a niobium material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Reichert et al. teach that niobium (II) oxide is a known material used in the solid electrolytic capacitor art (see paragraph 89).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the anode sintered body and paste with niobium (II) oxide powder, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

11. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Love et al. (US 4,599,788) and Yoshida (US 2003/0218859) as applied to claim 17 above, and further in view of Edson et al. (US 2004/0066607).

Regarding claim 25, Love et al. disclose the claimed invention except that the compact is made of niobium nitride powder, the metal plate being made of niobium, and the powder contained in the paste begin one of niobium powder, niobium (II) oxide powder and niobium nitride powder.

Yoshida discloses a solid electrolytic capacitor comprising a niobium metal plate.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the metal plate of Love et al. using a niobium material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Edson et al. teach that niobium nitride is a known material used in the solid electrolytic capacitor art (see paragraph 48).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the anode sintered body and paste with niobium nitride powder, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Allowable Subject Matter

12. Claims 7-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

13. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach or suggest (in combination with the other claim limitations) a solid electrolytic capacitor wherein the conductor includes an anode metal plate fixed to a lower surface of each sintered body via an insulator (claims 7-9); a solid electrolytic capacitor wherein the conductor comprises a metal cover for covering at least part of each sintered body (claim 10); and a solid electrolytic capacitor comprising two metal plates made of a valve metal respectively supporting the first sintered body and the second sintered body (claims 11-14).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 3,686,535 – capacitor with separate interconnected anode bodies

US 6,816,358 – chip type solid electrolytic capacitor

US 7,016,179 – solid electrolytic capacitor

US 2005/0117280 – solid electrolytic capacitor

US 2006/0146481 – chip type solid electrolytic capacitor

US 2006/0262488 – chip type solid electrolytic capacitor

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Thomas whose telephone number is 571-272-1985. The examiner can normally be reached on Monday - Friday 5:30 AM - 2:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric Thomas/
Primary Examiner, Art Unit 2831